

REMARKS

Claims 1-2, 4-5 and 11-12 are pending in this application. By this Amendment, claims 3 and 6-10 are canceled and new claims 11 and 12 are added. Support for new claims 11 and 12 can be found in the specification as originally filed, for example at page 6, lines 23-30; page 7, lines 16-27; and Fig. 7; and in claims 1, 3, 5 and 6 as originally filed. No new matter is added.

I. Claim Rejections Under 35 U.S.C. §102

The Office Action rejects claim 1 under 35 U.S.C. §102(b) over the Abstract of Japanese Patent Application Publication No. JP-02-092479. Applicant respectfully traverses this rejection.

Independent claim 1 sets forth a "method of laser deposition using a laser and deposition wire, the method characterised in that the original wire is heated and cross-sectionally reconfigured to increase the lateral dimension of the presented wire for greater overlap with a presented beam from the laser which melts the wire for deposition."

The Office Action takes the position that JP-479 teaches all of the features of claim 1. Applicant respectfully disagrees.

JP-479 discloses reconfiguring a wire into a V-shape prior to melting the V-shaped wire with a laser beam. *See* JP-479, Abstract. The reconfiguration of the wire in JP-479 reduces the lateral dimension of the wire and creates a V-shaped valley in which laser light is reflected and absorbed to melt the wire. *Id.* However, JP-479 nowhere discloses cross-sectionally reconfiguring a wire to increase its lateral dimension for greater overlap with a laser beam, as set forth in claim 1. Thus, JP-479 does not teach at least that "the original wire is ... cross-sectionally reconfigured to increase the lateral dimension of the presented wire for greater overlap with a presented beam," as set forth in claim 1.

For at least this reason, claim 1 is patentable over JP-479. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

II. Claim Rejection Under 35 U.S.C. §103

A. Claims 2 and 5

The Office Action rejects claims 2 and 5 under 35 U.S.C. §103(a) over the Abstract of Japanese Patent Application Publication No. 02-092479, as applied to claim 1, and further in view of the Abstract of Japanese Patent Application Publication No. 02-092480. Applicant respectfully traverses this rejection.

Claims 2 and 5 depend directly from claim 1, which is set forth above, and include all of the limitations thereof. Claim 2 sets forth the further limitation that the "wire is reconfigured to an oval or rectangle or dumbbell or semi-circle or serrated top cross-section." Claim 5 sets forth the further limitation that "at least a presented surface of the wire is knurled or otherwise roughened to reduce reflectivity of the presented beam."

The Office Action cites JP-479 as allegedly disclosing reconfiguring the cross-section of a wire, but admits that JP-479 does not disclose the cross-sections set forth in claim 2. The Office Action relies on JP-480 for its alleged teachings relating to forming grooves or serrations on the wire. Thus, the Office Action takes the position that the subject matter of claims 2 and 5 would have been obvious over JP-479 in view of JP-480. Applicant respectfully disagrees.

As discussed above, JP-479 discloses reconfiguring the cross-section of a wire into a V shape, but does not disclose, nor does it suggest, reconfiguring the cross-section of a wire to increase the lateral dimension. JP-479 also does not disclose or suggest the cross-sectional shapes set forth in claim and does not disclose or suggest that the wire is knurled or roughened to reduce beam reflectivity as set forth in claim 5. *See* JP-479, Abstract. Rather, JP-479 teaches that the lateral dimension of the wire is reduced, and the V shape of its

reconfigured wire increases the reflectivity of the beam. *Id.* Thus, JP-479 alone would not have rendered claims 2 or 5 obvious.

JP-480 discloses forming grooves of specified pitch on a wire using gear-shaped rollers to improve the efficiency of laser absorption and melting. *See* JP-480, Abstract. However, like JP-479, JP-480 does not disclose or suggest reconfiguring the cross-section of a wire to increase the lateral dimension. JP-480 also does not disclose or suggest the cross-sectional shapes set forth in claim 2 or that the wire is knurled or roughened to reduce beam reflectivity. *Id.* Rather, JP-480 teaches that grooves are formed to increase melt efficiency. *Id.* Thus, JP-480 does not remedy the shortcomings of JP-479.

Because the cited references, individually or in combination, do not disclose or suggest cross-sectionally reconfiguring a wire to increase its lateral dimension for greater overlap with a laser beam, as set forth in claim 1, and do not disclose or suggest the additional features set forth in claims 2 and 5, Applicant respectfully submits that claims 2 and 5 are patentable over JP-479 in view of JP-480. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

B. Claim 4

The Office Action rejects claim 4 under 35 U.S.C. §103(a) over the Abstract of Japanese Patent Application Publication No. 02-092479, as applied to claim 1, and further in view of U.S. Patent No. 4,048,705 to Blanpain et al. Applicant respectfully traverses this rejection.

Claim 4 depends from claim 1, set forth above, and includes all of the limitations thereof. Claim 4 further sets forth the limitation that the "heating is provided by induction."

The Office Action cites JP-479 as allegedly disclosing heating and reconfiguring the cross-section of a wire, but admits that JP-479 does not disclose induction heating, as set forth in claim 4. The Office Action relies on Blanpain as alleged showing that induction

heating is well-known . Thus, the Office Action takes the position that the subject matter of claim 4 would have been obvious over JP-479 in view of Blanpain. Applicant respectfully disagrees.

As discussed above, JP-479 discloses reconfiguring the cross-section of a wire into a V shape, but does not disclose, nor does it suggest, reconfiguring the cross-section of a wire to increase the lateral dimension, as set forth in claim 1. Thus, JP-479 alone would not have rendered claim 4 obvious.

Blanpain teaches methods of forming a soldering wire. *See* Blanpain, Abstract. Induction welders are used in various embodiments of these methods. *See* Blanpain, col. 6, lines 34-40. However, Blanpain, like JP-479, does not disclose or suggest reconfiguring the cross-section of a wire to increase the lateral dimension. Thus, Blanpain does not remedy the shortcomings of JP-479.

Because the cited references, individually or in combination, do not disclose or suggest cross-sectionally reconfiguring a wire to increase its lateral dimension for greater overlap with a laser beam, as set forth in claim 1, Applicant respectfully submits that claim 4 is patentable over JP-479 in view of Blanpain. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

III. Claim Objections

The Office Action objects to claims 3 and 6 as being dependent on a rejected base claim. Applicant thanks the Examiner for the indication that claims 3 and 6 contain allowable subject matter. For at least the reasons set forth above, Applicant respectfully submits that the claims from which claims 3 and 6 depend are in condition for allowance.

IV. New Claims

Nevertheless, new independent claims 11 and 12 are added by this Amendment. Claims 11 and 12 incorporate all of the features of claims 3 and 6, respectively, as well as any

base and intervening claims, and claims 3 and 6 are canceled. For at least the same reasons that claims 3 and 6 were indicated to contain allowable subject matter, Applicant respectfully submits that claims 11 and 12 are in condition for allowance.

V. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-2, 4-5 and 11-12 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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